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CENTRAL INTELLIGENCE AGENCY

OFFICE OF NATIONAL ESTIMATES

24 June 1955

MEMORANDUM FOR THE DIRECTOR

SUBJECT: Chinese Communist Capabilities for Developing an Effective Atomic Weapons Program and Weapons Delivery Program

THE PROBLEM

Assuming an international disarmament plan were adopted and Communist China were excluded, how long would it take Communist China to develop effective capabilities in atomic weapons and weapons delivery (a) without Soviet assistance, and (b) with Soviet assistance?

ASSUMPTION

Although radical technological advances which would substantially reduce the difficulties of producing fissionable material and nuclear weapons could occur within the next ten years, this paper does not consider the chances or the effects of such advances.

NOTES: 1. This paper is on one of the topics of interest to the Stassen Committee. It is based on informal O/SI and JAEIC contributions.
A more technical discussion of the atomic weapons problem is found in the JAEIC Estimate (TOP SECRET, RESTRICTED DATA): "The Nuclear Weapons Capabilities of Selected Countries in 1960 and 1965," approved by the IAC on 21 June 1955.
2. It has not been coordinated with the IAC agencies.

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CONCLUSIONS

1. Communist China almost certainly could not develop significant capabilities for the production of nuclear weapons within the next 10 years unless it were given substantial external assistance. Without such assistance, the development of an adequate industrial base and a supply of trained scientific and technical personnel sufficient to support an effective nuclear weapons program would probably take well over 10, and possibly 20 years.

2. The Chinese Communist Air Force with only 10 medium bombers (TU-4 BULL) has a minimal capability for long-range bombardment. With its force of 150 jet light bombers (IL-28 BUTCHER), the CCAF could conduct sustained short-range operations. Communist China almost certainly will not have the capability to manufacture modern bombing aircraft within the next 10 to 15 years. Thus, the development of any significant CCAF capability for long-range air attacks will depend for many years on the receipt of suitable aircraft from the USSR.

3. Assuming that the USSR transferred completed weapons, long-range bomb carriers and all related equipment, and provided training assistance, the Chinese Communist could probably develop a capability to utilize such Soviet weapons and bomb carriers effectively within 18 months to two years from the initiation of the program.

DISCUSSION

I. INTRODUCTION

4. A nuclear weapons program is usually considered to be a derived program, based on the contributions of many of the most significant areas of an advanced economy. In the past, such programs have been successful only in countries which already possessed established scientific, technical, industrial, and communications resources of considerable magnitude and capability. These countries also had the financial resources and the personnel needed to plan, control, administer, and operate these programs effectively.

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5. Communist China has none of these advantages. If it initiated a nuclear weapons program within the next 10 years, the industrial and scientific bases for the program would have to be created simultaneously. If attempted within the next 20 years, the cost of the program in terms of objectives and priorities of the regime would still be high, and perhaps insurmountable.

II. ATOMIC WEAPONS DEVELOPMENT

A. Without Soviet Assistance*

6. The time it would take Communist China to develop an atomic weapons capability without Soviet assistance would depend upon the state of Communist China's industrial and scientific development at the time a program was initiated. Today, Communist China is in an unfavorable position in almost every respect to develop a successful indigenous program. The status of its industrial development is such that it is not considered capable of supporting a program effectively. Its supply of uranium ore is estimated to be enough for a sizeable program, but China does not yet have the capability to process significant quantities of uranium. It has almost no scientific tradition in theoretical and experimental physics and has relatively few people trained and experienced in the applicable scientific and technical fields. It has no experience in the successful administration of large scientific projects. Soviet aid in atomic energy is minor and, for atomic weapons development, practically useless. Given Communist China's financial commitments for conventional sectors of the economy and the armed forces, it is doubtful that it would be willing or able to deflect the funds needed to support a program. In these circumstances we believe that the possibility of Communist China developing effective capabilities in atomic weapons without a significant change in the character and extent of Soviet aid can be dismissed for the next 10 years.

* This section assumes that the present general character of Soviet economic and technical assistance will continue, but that there would be no Soviet assistance directly supporting an atomic weapons development program.

7. Given another 10 years, Communist China may develop an industrial base and a supply of trained and experienced scientific and technical personnel large enough to enable it to develop an effective program. An important consideration is that the character of Soviet aid will probably have been modified. As Communist China develops it will be in a better position to utilize advances in technology that the USSR will have at its disposal. It is likely that Communist China, trying to make use of the latest and most efficient technical knowledge in speeding the growth of its economy, will attempt to enter and master progressively more complicated areas of atomic science. And it is reasonable to expect that as Communist China becomes stronger, the Chinese will feel themselves in an increasingly favorable bargaining position with the USSR and might bring pressures for aid in nuclear science. For instance, it is not unlikely that the limited assistance in atomic research that the USSR is now giving to Communist China will be expanded to include assistance in the development of nuclear energy for electric power. Educational and scientific assistance programs could be expanded to cover training in the applicable scientific and technical fields, perhaps even to giving experience in the USSR nuclear weapons program. Another consideration that could help to shorten the development period would be the modification or lifting of the Western trade embargo. However, the program would still be a costly one in terms of Communist China's resources and their effective utilization. China would still be attempting to create an industrial base for its economy and even at the end of 20 years this economy would still be primitive when compared with that of the USSR, the UK, or the US.

B. With Soviet Assistance

8. Soviet support of a nuclear weapons program in Communist China could take several forms depending in part on the extent to which the USSR was prepared to violate any applicable portions of the disarmament agreement. The USSR could simply transfer to Communist China the completed weapons and train the Chinese to handle them. At the other extreme, it could set out to create a program for Communist China by providing the training and know-how to the Chinese, including support for the Chinese Communist industrial base.

9. Should the USSR transfer to Communist China completed atomic weapons including maintenance equipment and training and operations personnel, Communist China could develop an effective storage, assembly, and maintenance capability within a year to a year and one-half.

10. The USSR could fabricate within the USSR the equipment and components for a complete program, or the major or more highly technical portions thereof, and transport them to Communist China, with the aim of transferring the program to the Chinese as soon as they could be trained to operate the completed plants. In this situation, it would be possible to have the first bombs completed within three to four years, but it would probably remain primarily a Soviet operation for some time thereafter.

11. It would not be feasible for the USSR to dismantle complete production plants and reassemble them in Communist China. Because of the contamination problem, it is particularly unlikely that the USSR would dismantle and ship to Communist China an operating atomic reactor or isotope separation plant.

12. If the USSR increased its educational and technical assistance in all those areas applicable to the development of a program while actual construction, operation and support were placed in Chinese hands, an effective program could be established within then years. The ten-year period could be shortened by having some industrial equipment furnished by the USSR.

III. CHINESE COMMUNIST NUCLEAR DELIVERY CAPABILITIES AGAINST THE US AND YET OVERSEAS INSTALLATIONS AND FORCES

A. Current Capabilities

Aircraft*

13. The Chinese Communist Air Force (CCAF) has an estimated ten BULL (TU-4) aircraft. The CCAF also has an estimated 150 BUTCHERS (IL-28) jet light bombers.

* See Table 1. NIE 11-7-55, 24 June 1955, gives additional data on the characteristics and capabilities of Soviet aircraft.

Airbases

14. The Chinese Communists have demonstrated a capability for rapid airfield development and the construction or supply of bases within China would not place any significant limitations on CCAF operating capabilities. At present there are 4 airbases in China which are capable of supporting sustained operations of light, medium, or heavy bombers. Three of these bases are located in the Mukden area, the fourth near Peiping. There are 32 airbases that are capable of supporting sustained operations of jet light bombers and limited medium and heavy bomber operations.

Operational Effectiveness

15. There is insufficient intelligence on CCAF training of BULL crews to provide a precise measure of operational effectiveness. The CCAF has possessed BULL aircraft for only two years, and the CCAF BULL unit is probably still less effective in bombing operations and navigation than the Soviet Long Range Air Force. CCAF jet light bomber crews have probably reached a level of proficiency approaching that of Soviet crews.

B. Future Capabilities

16. The development of any significant CCAF capability for long-range air attacks will depend for many years on the receipt of suitable aircraft from the USSR. Either the BEAR (turboprop) or BISON (Type 37) heavy bomber* if made available in large numbers would greatly increase CCAF long-range capabilities.

Operational Effectiveness

17. In view of the tenuous evidence available regarding CCAF training of BULL crews it is difficult to estimate the length of time which would be required for CCAF crews to achieve proficiency in operation of heavy bombers. It would probably require

* See Table 2, NIE 11-7-55, 24 June 1955, gives additional data.

approximately 18 months for CCAF aircrews and maintenance personnel to become proficient enough with BEAR or BISON aircraft to permit sustained long range bombing operations. This period might be reduced by as much as one-third in an all-out effort. If an inflight refueling capability was developed it probably could be done concurrently with other training without extending the total training time.

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FOR THE BOARD OF NATIONAL ESTIMATES

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TABLE 1

ESTIMATED RADIUS/RANGE (NM) OF CCAF AIRCRAFT

	Bomb Load	US Military Missions Profile	Modified Missions Profile
BULL TU-4	10,000 lbs 3,000 lbs	1700/3100 1950/3500	1800/3300 2050/3700
MODIFIED BULL	10,000 lbs 3,000 lbs	2000/3600 2300/4100	2150/4000 2450/4600
			Combat Altitude
BUTCHER IL-28			
a. Internal Fuel	4400	590/1165	30,000
b. Internal Fuel	6600	570/1100	30,000
c. External Fuel	4400	690/1365	30,000
d. External Fuel	4400	595/1180	low level attack

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TABLE 2

ESTIMATED RADIUS/RANGE (NM) OF USSR LONG-RANGE AIRCRAFT

	Bomb Load	US Military Mission Profile	Modified Mission Profile
BISON (Type 37)	10,000	2750/5300	3100/6100
one refuel		3800/7300	4300/8100
	3,000	2850/5500	3200/6400
one refuel		3900/7500	4300/8200
BEAR* (Turboprop Heavy Bomber)	10,000	3700/7200	
one refuel		5200/9800	

* Estimates on BEAR are tentative pending further analysis of information.

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